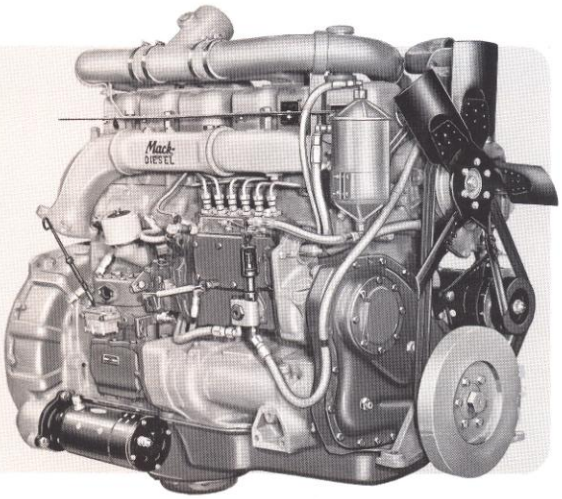
ENGINES

END 673P • *ENDL 673P

THERMODYNE DIESEL

HORSEPOWER	187
GOVERNED RPM	2100
CYLINDERS	6
TYPE	Naturally Aspirated



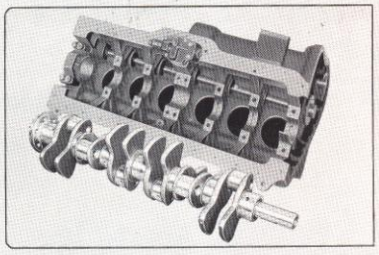
Improved breathing capacity by means of a tuned manifold for greater volumetric efficiency, a matching fuel pump for economical horsepower and the time-proven Mack Air-Swirl combustion chamber for unexcelled thermal efficiency are features of this proven Mack Thermodyne diesel engine. Superior fuel economy and high power, lively flexibility and rugged dependability are the results attained by this 187-horsepower, naturally aspirated, six-cylinder, four-stroke cycle engine.

Of the famous open-chamber, direct-injection type, the combustion system achieves outstanding results by a combination of features of established merit. Among these is the deep-breathing, high-velocity air swirl. This, combined with an improved multiple-unit injection system, operating at moderate pressure, produces high thermal efficiency and therefore sustained economy through a broad range of useful speeds.

PROVEN DESIGN ADVANTAGES

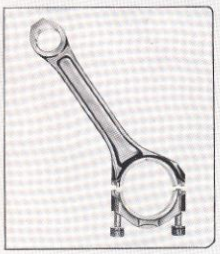
- Lubrication oil is thoroughly cleaned by a combination full-flow by-pass filter to prolong engine and oil life.
- Uniform cooling through directed water flow promotes even cylinder temperature and better valve life.
- Durafaced valve lifters are faced with tungsten carbide to render them relatively immune to wear and assure long cam and lifter life.
- The crankshaft is fully counter-balanced, and induction hardened and has cool-running hollow crankpins.
- Smooth and flexible operation result from the Synchrovance which automatically controls injection timing for best results at every engine speed. In addition, it assures quick starting, even at low temperature.
- Angle-split connecting rods permit largest bearings and removal of rods through cylinder bores.

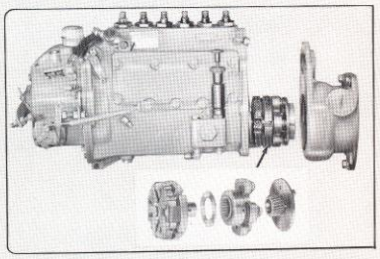
ENGINE MODELS END 673P & ENDL 673P



Crankcase is proven and of great rigidity with husky bulkheads to support seven main and camshaft bearings. Mack crankshaft is fully counter-balanced with integral counterweights having hollow crankpins for cooler running bearings, longer connecting rod bearing life and smoother-running engine.

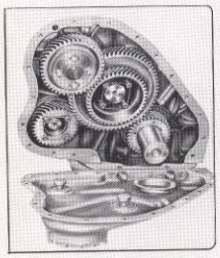
Connecting Rod caps are split at a 35-degree angle to permit large diameter crankpins while retaining clearance for piston and rod withdrawal through cylinder bore. The angle-split plus a tongue-and-groove lock of the caps secured by precision capscrews result in high strength.

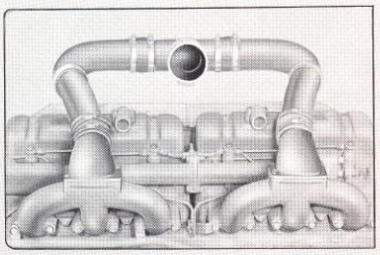




Synchrovance, multiple unit fuel injection pump and governor, sealed assembly — driven direct from the timing gears; compact and flange mounted independent of engine valves makes for ease of maintenance; retardation provided in coasting for greater economy and safety. Exploded view of exclusive Synchrovance automatic injection timing device which assures exceptional smooth running and easy starting.

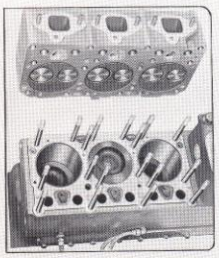
Mack's exclusive Everlasting Timing Gears — end-grain drop-forgings for strength, case-hardened for durability and generator-ground for quietness.

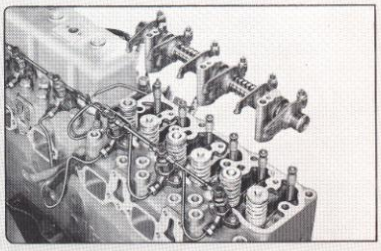




Designed for utmost volumetric efficiency through high breathing capacity and a rammed delivery of air to the cylinders, the intake manifold is an important factor to the engine's greater power and oustanding fuel economy.

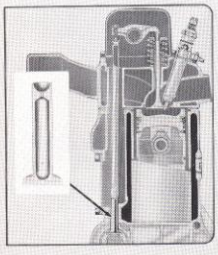
Cylinder head raised showing large inlet valves, positive type rotator exhaust valves, fuel injector nozzle positioned for engine efficiency and ease of maintenance. Mack Permafit exhaust valve seat inserts assure long valve life and sustained engine power. Combustion chamber is in the high-strength aluminum alloy piston crown.





Rigid rocker arms and large tappets designed to result in proper lubrication to valve stems and push rods and to assure quieter operation.

Unequalled economy and smokeless operation is assured by the smooth and rapid air-swirl in the combustion chamber which atomizes the direct fuel spray for complete burning. Uniform temperature is afforded by full cylinder length water jackets. Enlargement shows Mack's exclusive Durafaced valve lifter with wear-proof tungsten-carbide facing for unmatched long life.



DETAIL SPECIFICATIONS

THERMODYNE DIESEL:

Make	Mack
Type	Naturally aspirated
Number of cylinders	Six
Bore and stroke	4-7/8" x 6"
A.M.A. horsepower	57.0
Brake horsepower @ 2100 rpm (gov.)	187
Piston displacement	672 cubic inches
Compression ratio	15.81:1
Max. torque @ 1400 rpm	527 lb.-ft.

CYLINDER BLOCK:

Construction	Chromium-nickel-copper alloy iron
Cylinder sleeves	Special alloy iron, phosphate coated
Type	Dry
Cylinder heads cast in	Threes

PISTONS:

Pistons, material	Aluminum alloy
Piston rings, compression	Three (top ring chrome plated)
Oil control	Two (chrome plated)
Wristpin, type	Full-floating
Diameter	1-5/8"
Retention	Snap rings

CONNECTING RODS:

Type	Drop-forged I-beam
Cap angle	35°
Length, center to center	11-1/4"
Bearings, material	Copper-lead, steel back with babbitt overlay

CRANKSHAFT:

Type	Integral counterweights
Material	Medium carbon steel, Tocco hardened journals
Weight	228 lbs.
Vibration damper	Viscous type
Crankpins, dia. & length	3" x 2-1/4"
Main bearings, material	Copper-lead, steel back with babbitt overlay
Number and diameter	Seven, 4"
Total length	10-15/16"

CAMSHAFT:

Bearings	Seven
Timing drive	Mild carbon steel, case-hardened, generator ground helical gears

VALVES:

Valve-lifter, type	Mushroom, Durafaced (Tungsten-carbide)
Inlet and exhaust valve seats	Permanently fitted inserts of high-alloy, heat-resistant metal
Valves, location	Overhead
Exhaust	Hard faced, with positive type rotators
Clear dia. of ports, inlet	2-3/64"
Exhaust	1-11/16"
Lift, inlet & exhaust	9/16"
Material, inlet	Chromium-silicon steel, Stellite faced
Exhaust	Stabl-ite (face, Stellite; head and upper end of stem, chromium-nickel-nitrogen-austenitic steel; lower end of stem, nickel-chromium-molybdenum steel)

FIRING ORDER: 1-5-3-6-2-4

FUEL SYSTEM:

Fuel injection pump	American Bosch, APE
Type	Multiple Unit
Drive	Gear
Timing	Synchrovance, variable automatic
Transfer pump, type	Plunger
Nozzles, type	Four-hole spray
Fuel filters	Primary and secondary
Governor, make	American Bosch
Type	Mechanical

MANIFOLDS:

Inlet	Ram type, cast aluminum
Exhaust	3-piece, 6-part

AIR SUPPLY:

Air cleaner	Donaldson, oil bath
Air compressor (gear driven)	Tu-Flo 500 (12 cu. ft.)

COOLING SYSTEM:

Thermostat, to open	170°

LUBRICATING SYSTEM:

Lubrication, oil filter:	
Make and model	W.G.B., WB-5
Type	Combination Full Flow/By-Pass,
Capacity	12 quarts
Oil capacity, including filters	31 quarts

* Engine Model ENDL 673P is the same as Model END 673P except for having the flywheel housing of aluminum instead of iron.

Illustrations are not necessarily a representation of standard specifications with respect to all details.

ENGINE MODELS END 673P & ENDL 673P

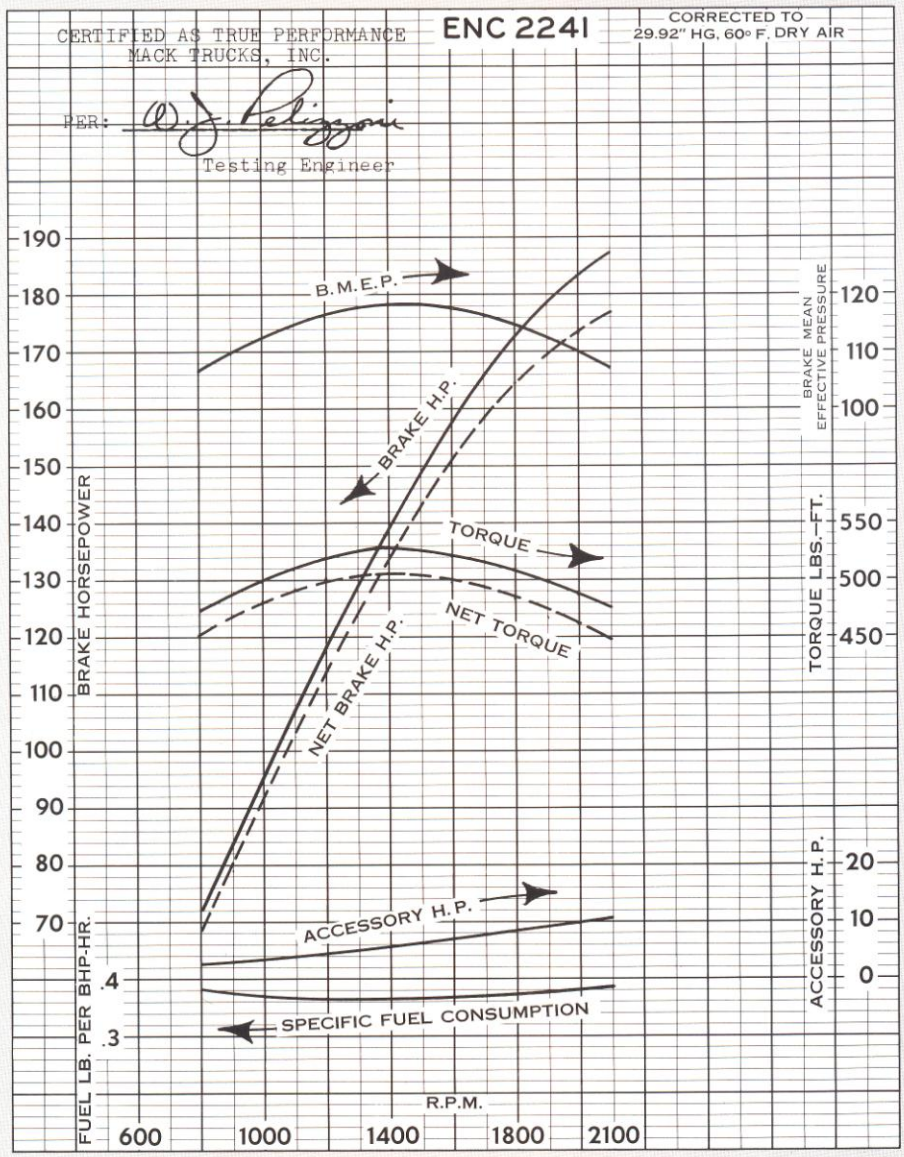
Curve Sheet DD-4

SAE DIESEL ENGINE TEST CODE Test No._____

Eng. Mfr. MACK Model END 673P Serial No._____ Date_____

No. Cyl. 6 Bore 4 7/8 Stroke 6 Displacement 672 CU. IN.

Fuel DIESEL *For Details see Mech. Inform. Sheet* END 673P-A *and Log Sheet*_____



MACK TRUCKS INC. • MONTVALE, N. J.

5-65 (THM-C.P.)

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